Unit I – Topic 8

Can washers-types-working

Introduction

Milk is procured from villages in cans, and brought to the Dairies or Bulk milk collection centers. At dairies, if the collection through cans is in large quantities, the cans have to be cleaned using mechanical means. If the quantities are less, then it can be done manually, using can washing trough and mechanically operated brushes and steaming blocks. The mechanical can washers are again two types. The smaller capacity ones are Rotary can washers, whose capacity is 3 to 5 cans/min, while the larger capacity ones are Straight-through can washers, whose capacity is about 12 cans/min.

Cans Washing or Can Scrubber

This method is adopted in all milk chilling centres where less number of cans is to be washed. One man can operate this unit conveniently.

Construction of can scrubber is shown in figure and described below:

1. The scrubber machine is made of 10 SWG G.I. sheet or M.S.sheet with totally galvanised.
2. The machine is painted with 'epoxy' paint to avoid corrosion.
3. The can scrubber consists of a tank in which two revolving nylon brushes are mounted on shafts.

4. The extension of shafts are properly encased in sealed enclosures and provided with suitable bearings and lubrication points.

5. Gland packing is used to avoid the leakage through the shaft.

6. A stationary nylon brush is fitted with a bracket on the inner wall for cleaning outside of the cans.

7. Side stationary brush is changeable. It can be fitted on either side of the inner wall.

8. Cylindrical nylon brushes, revolve at a low speed, i.e., 80 to 100 rpm, in opposite directions by a motor and reduction gear unit, give thorough and effective cleaning action on either side of the can..

9. Steam and water connections are given to the tank for making warm water for washing operation.

10. At the bottom of the tank a drain valve is fitted for easy draining and cleaning of the tank.

Preparation: Can scrubber is prepared for can washing as follows

1. Check the oil level in the gearbox and lubricate the chain over the sprockets for the brushes.

2. Check the rotation of the brushes.

3. Clean the tank and close the drain valve.

4. Open the water valve and fill the tank to the marked level.

5. Add. 0.8% washing soda and 0.2% tri-sodium phosphate to the water.

6. Open the steam valve and raise the temperature of the detergent solution to 55°C.

7. Start the rotating brushes by switch on the drive motor.

Washing Operation: Washing operation is done as follows

1. First of all can is pre-rinsed with warm water at about 40°C both from inside •and outside.

2. Then can is inserted on the top rotating brush and brushed thoroughly from both sides for 10 seconds.

3. Then can is taken out and rinsed with hot water at about 60°C.

4. Final rinsing, sterilization and drying of can are carried out on the steaming block.

Steaming Block

Steaming block is always used with can scrubber for final rinsing and sterilization of washed cans. The construction of steaming block is as below:

1. The stationary part of steaming block is made of cast iron material and the working parts are of stainless steel.

2. At the base water and steam lines are connected through spring loaded valves and the valves are operated by the pedestal levers.

3. A steam mixing battery is fitted inside the vertical column.

4. The top portion has a concave surface on which a spray nozzle, drain hole, and seat rests for can mouth are provided.

Operational precautions

1. Steam supply should be given through a steam mixing battery to avoid vibration.

2. If the brushes do not rotate, check the direction of rotation and correct it or tighten the idler wheel, provided on the chain, as required.

3. It will be hard to insert the can on a new brush. Do not cut the nylon bristles

to reduce brush diameter in order to reduce the worker's labour. If this is done, the scrubbing and cleaning will be ineffective.

4. Periodically check the lubrication and alignment of gearbox and sprockets to avoid any breakdown.